Ocean Pout

by
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The ocean pout, *Macrozoarces americanus*, is a demersal, eel-like species ranging from Labrador to Delaware that attains lengths of up to 98 cm (39 in.) and weights of 5.3 kg (14.2 lb). Ocean pout prefer depths of 15 to 80 m (8 to 44 fathoms) and temperatures of 6º to 7º C (43º to 45º F). Tagging studies and NEFSC bottom trawl survey data indicate that ocean pout do not undertake extensive migrations, but rather move seasonally to different substrates. During winter and spring, ocean pout feed over sand or sand-gravel bottom and are vulnerable to otter trawl fisheries. In summer, ocean pout cease feeding and move to rocky areas, where spawning occurs in September and October. The demersal eggs are guarded by both parents until hatching. During this period, ocean pout are not available to commercial fishing operations. Typically, catches increase when adults return to their feeding grounds in late autumn and winter. The diet consists primarily of invertebrates, with fish being only a minor component.

Stock identification studies suggest the existence of two stocks: one occupying the Bay of Fundy-northern Gulf of Maine region east of Cape Elizabeth, and a second stock ranging from Cape Cod Bay south to Delaware. The southern stock is characterized by faster growth rates, and to date has supported the commercial fishery.

The principal fishing gear used to catch ocean pout is the otter trawl, and the fishery occurs primarily between December and May each year. Ocean pout are included in the New England Fishery Management Council' s Multispecies Fishery Management Plan under the "nonregulated multispecies" category. Total landings in 1998 were only 17 mt, the lowest since 1963.

Commercial interest in ocean pout has fluctuated widely. Ocean pout were marketed as a food fish during World War II, and landings peaked at 2,000 mt in 1944. However, an outbreak of a protozoan parasite that caused lesions on ocean pout eliminated consumer demand for this species. From 1964 to 1974, an industrial fishery developed, and nominal catches by the U.S. fleet averaged 4,700 mt. Distant-water fleets began harvesting ocean pout in large quantities in 1966, and total nominal catches peaked at 27,000 mt in 1969. Foreign catches declined substantially afterward, and none have been reported since 1974.

United States landings declined to an average of 600 mt annually during 1975 to 1983. Catches increased in 1984 and 1985 to 1,300 mt and 1,500 mt respectively, due to the development of a

small directed fishery in Cape Cod Bay supplying the fresh fillet market. Landings have declined more or less continually since 1987, in spite of continued market demand. In recent years, landings from the southern New England/Mid-Atlantic area have continued to dominate the catch, reversing landing patterns observed in 1986-1987, when the Cape Cod Bay fishery was dominant. The shift in landings is attributed to the changes in management (gear) regulations.

From 1968 to 1975 (encompassing peak levels of foreign fishing and the domestic industrial fishery), commercial landings and the NEFSC spring bottom trawl survey biomass index followed similar trends; both declined from very high values in 1968-1969 to lows of 300 mt and 1.3 kg per tow, respectively, in 1975. Between 1975 and 1985, survey indices increased to record high levels, peaking in 1981 and 1985. Since 1985, survey catch per tow indices have generally declined, and are presently less than the long-term survey average (3.9 kg per tow); the 1999 spring survey index value was 2.6 kg per tow.

To evaluate stock conditions with respect to the SFA control rule, a three year average of NEFSC spring survey indices and the relative exploitation ratio (1999 catch/ average of 1997,1998,1999 spring survey biomass indices) were used as proxies for biomass and fishing mortality, respectively. The most recent three year average survey index (1.97 kg/tow) indicates that biomass is below the minimum biomass threshold (2.4 kg/tow) and the relative exploitation ratio (0.009) above the threshold established to allow for stock re-building. Thus, the ocean pout population appears to be overfished and overfishing occurred in 1999 .

For further information

NEFC [Northeast Fisheries Center]. 1990. Report of the Eleventh Stock Assessment Workshop, Fall 1990. Northeast Fish. Cent. Ref. Doc. 90-09. 121 p.

Olsen, Y. H., and Merriman, D. 1946. Studies on the marine resources of southern New England, IV: The biology and economic importance of the ocean pout, *Macrozoarces americanus* (Bloch and Schneider). Bull. Bingham Oceanogr. Collec. 9:1-184.

Orach-Meza, F. L., 1975. Distribution and abundance of ocean pout, *Macrozoarces americanus* (Bloch and Schneider), in the western North Atlantic Ocean. Kingston, RI: University of Rhode Island. Master's thesis.

Summary Status

Long-term potential catch (MSY)   =   1,500 mt (proxy)

Biomass corresponding to MSY   = B_{MSY} proxy [1] = 4.9 kg/tow

Minimum biomass threshold   =   ½ B_{MSY} proxy = 2.4 kg/tow

Stock biomass proxy [2] in 1999   =   1.98 kg/tow(implies stock is overfished)

F_{MSY}-proxy [3]   =   0.31

F_{TARGET} =   0.19

Overfishing definition   = $F_{THRESHOLD}$ [4] = F_{MSY} proxy = 0.31

F_{1999} proxy [5]   =   0.009 (implies overfishing is occurring)

Age at 50% maturity   =   unknown

Size at 50% maturity [6]

    Gulf of Maine   =   30.3 cm (11.9 in.), males

                                      26.2 cm (10.3 in.), females

    Southern New England   =   31.9 cm (12.6 in.), males

                                      31.3 cm (12.3 in.), females

Assessment level   =   Index

Management   =   Multispecies FMP

M=Unknown   **$F_{0.1}$**= Unknown   **F_{max}**= Unknown

[1] Median of NEFSC spring bottom trawl survey index (kg/tow) during 1980-91.

[2] The 3-year moving average of NEFSC spring bottom trawl survey.

[3] Relative exploitation rate =catch/survey index (1.5/4.9 = 0.31).

[4] $F_{THRESHOLD}$ = F_{MSY} proxy = 0.31 when biomass = B_{MSY} proxy, decreasing linearly to zero as biomass declines from B_{MSY} proxy to ½ B_{MSY} proxy. When biomass below ½ B_{MSY} proxy, fishing mortality should be held as close to zero as practicable ($F_{THRESHOLD}$ = 0).

[5] Relative exploitation rate = 1999 catch/3-year moving average of NEFSC spring index.

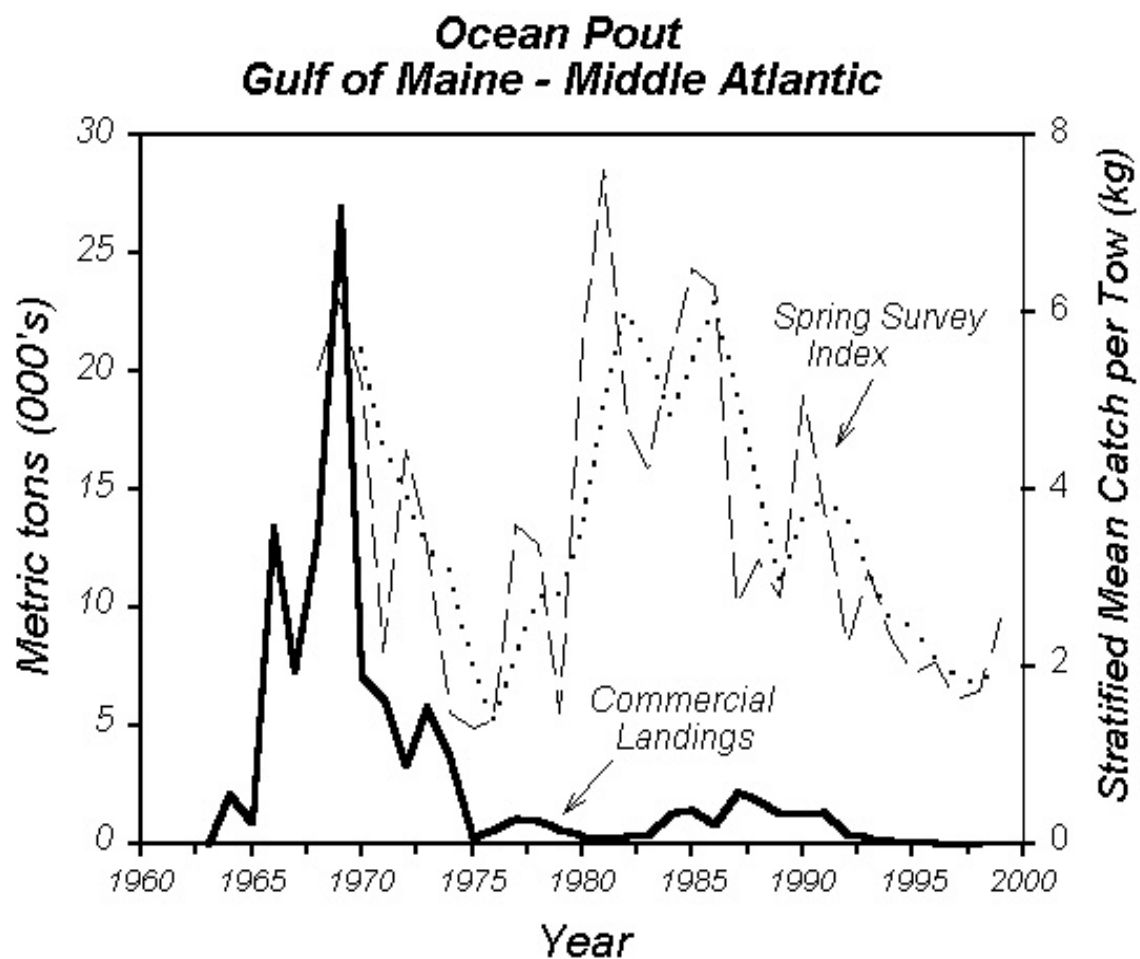[6] Ocean pout may have a three-year egg development period.

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Gulf of Maine - Middle Atlantic**

Table 16.1   Recreational and commercial landings (thousand metric tons)

Category	Year										
	1979-88 average	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
U.S. recreational	-	-	-	-	-	-	-	-	-	-	-
Commercial											
United States	1.0	1.3	1.3	1.4	0.5	0.2	0.2	0.1	0.1	<0.1	<0.1
Canada	-	-	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-	-	-
Total nominal catch	1.0	1.3	1.3	1.4	0.5	0.2	0.2	0.1	0.1	<0.1	<0.1